DOCUMENT RESUME

ED 255 112 HE 018 144

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TITLE Quantitative Assessments of Student Differences: A Faculty Development Approach for Teachers of Large Classes.
PUB DATE 4 Apr 85
NOTE 11p.; Paper presented at the Annual Meeting of the American Educational Research Association, Division J (69th, Chicago, IL, March 31-April 4, 1985). This study was made possible by a Kelly II Grant from the University Foundation, Lincoln, Nebraska.
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Achievement; Class Size; College Faculty; *College Instruction; Consultation Programs; *Faculty Development; Higher Education; Information Needs; *Instructional Improvement; Introductory Courses; Land Grant Universities; *Large Group Instruction; Student Attitudes; *Student Characteristics; Teacher Attitudes; *Teacher Effectiveness

ABSTRACT

A faculty development process was developed to inform faculty about the diversity of characteristics among students in large classes at a large, land-grant institution. Data were collected on 4,300 students enrolled in 33 sections of large introductory-level classes taught by 26 faculty. A total of 149 study variables were considered based on university records, student attitudes and behavior pertinent to a particular class, and student achievement as indicated by course grade. Faculty members received descriptive information about students, the study variables, and student attitudes and behavior and were invited to meet with an instructional consultant to review the data and discuss instructional alternatives. A followup, self-report assessment was conducted 1 year later to determine the extent to which faculty attitudes and behaviors changed. It was found that empirical research data provided to faculty about their own classes could be useful for increasing awareness of factors contributing to student achievement. However, data provided to faculty without consultation about student achievement had little effect in producing changed teaching behavior. Finally, data presented in a consultive mode was more effective in changing attitudes or behaviors than that presented in a computer printout format. Five references are listed. (SW)

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Quantitative Assessments of Student Differences: A Faculty Development Approach for Teachers of Large Classes

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A paper presented at the 1985 Annual Meeting of the American Educational Research Association, Division J, Chicago, Illinois, April 4, 1985

*This study was made possible by a Kelly II grant from the University Foundation, Lincoln, Nebraska.

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Quantitative Assessments of Student Differences: A Faculty Development Approach for Teachers of Large Classes

ABSTRACT

This study reports and assesses a faculty development process designed for University faculty in a research-oriented climate. It provided for a data-based analysis of 149 student-related variables which related to achievement among 33 large classes with 4300 students. This data was utilized for individual consultation with faculty to increase awareness of the instructional setting and to plan change. The process was assessed for faculty attitudes and/or behavior change with a self-report instrument.

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Quantitative Assessments of Student Differences: A Faculty Development Approach for Teachers of Large Classes

Objectives

The purposes of this study were (a) to examine variations in student characteristics in large university classes as they relate to achievement, (b) to utilize this data to assist university faculty in becoming aware of the diversity of characteristics among students in their classes, (c) to encourage analysis and responses to this diversity by faculty, and (d) to evaluate the success of this process as a faculty development strategy.

Perspectives/Theoretical Framework

> "Perhaps more effective use of research in education has at least something to do with the notion of reciprocity; that is, that research ought to be as much for the subjects being studied as it is for the researcher. More involvement on the part of teachers and others in the design of the research itself, more involvement as the research progresses, sharing of preliminary results, and most important, dialogue about and follow-up of the results of research in participating schools might make a difference." (Rogers, 1984).

It was from this perspective that this study was integrated into the faculty development program of a large land-grant institution. The study was initiated in response to an expression of concern from a group of faculty who taught large classes (enrollment of 100+

students). They felt considerable differences occurred among large classes even though the subject matter and instructor were the same. Some groups achieved well, others did not. In an effort to identify factors contributing to this, the group requested that the faculty development office implement a study to provide data on variables which relate to achievement in their individual classes.

This study promised to provide for several elements which are important for faculty instructional development, including:

a. Self-awareness of the instructional factors with a structure for shared action (Astin, 1974).

b. Provision of useful information with which to obtain external perspectives on their teaching (Gaff, 1976).

c. Ownership of faculty of purposes and activities (Lindquist, 1978).

d. Active involvement with new information in "collaborative inquiry." (Lindquist, 1978).

Hypothesis

It was hypothesized that University faculty operating in a research-oriented climate would respond to a data-based analysis of student achievement in their classes with changed attitudes and changed teaching behaviors.

Methods and/or Techniques

In the fall semester of 1983, data were collected on 4300 students who were enrolled in 33 sections of large introductory level classes taught by 26 faculty in a large land-grant institution.

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Classes were selected using a stratified sampling technique. The final sample was comprised of at least two classes in each of the eight subject matter categories outlined by Biglan (1973).

Three sources of one hundred forty-nine variables representing student characteristics data were examined including:

1. University records (demographic information, attitudes, interests, high school GPA, and ACT scores.);
2. Responses on a fifty-item questionnaire designed to assess varying attitudes and behavior pertinent to the particular class; and
3. Student achievement as indicated by course grade.

Each participating faculty member received a report including:

1. Descriptive information including: a frequency distribution of course grades, reasons for taking the course, and composite ACT scores by quartiles of student in their class.
2. A listing of all 149 variables considered.
3. A cross-tabulation of variables that were significantly related to grades given in the particular class with each grade category in that class.
4. Significant variables for the entire group of 33 classes.
5. Mean Z-scores of students enrolled in the instructor's course for the attitudes and behaviors measured by the fifty-item questionnaire. This information enabled the faculty to determine how student responses compared to those of other classes.

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This report was made to each faculty member in the form of computer printouts in which explanatory narrative had been inserted. After reviewing their individualized report, each faculty member was invited to meet with an instructional consultant to review the data, examine inferences and, when appropriate, to discuss indicated instructional alternatives. A follow-up, self-report assessment was conducted one year later to determine the extent to which faculty attitudes and behaviors changed. Twenty (76.9 percent) of the original 26 participants provided feedback on the effects of the study on their awareness and on behavior changes in their classes. Four (15.38 percent) no longer were teaching at the university, and two (7.69 percent) did not respond to the follow-up.

Results and/or Conclusions

Six variables were identified as best predictors of grades for the entire group of 33 classes; however, the set of variables that accounted for variance in achievement in specific classes was frequently different from the entire sample.

Participating faculty who received this data in a consulting mode expressed confidence that the findings represented information dependably specific to their own instruction. A consistent result was reflecting on their own instructional methodology in relation to the reported data and implications for improvement when discussing data with a consultant.

The follow-up conducted one year later had the following results:

1. Among ten faculty who received computer printout feedback only three or 30% reported an increased

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awareness about factors affecting achievement; none reported any implementation or behavior change in their large classes; and two did not respond.

2. Among the faculty who received computer feedback combined with consultation; nine or 100% reported raised awareness about factors affecting achievement; and two or 22.2% reported some implementation or behavior change in their large classes.

Insert Table 1 Here

Representative comments from participants included: "information was very interesting," "data confirmed my subjective opinion," "interesting, but not useful," and "no implementation strategy is clear".

Discussion

One would expect, as this paper hypothesizes, that faculty experienced in the use of empirical data for the study of phenomena would find this a useful approach for their own instructional development. This study does not support that view. While participants understood the analysis and increased awareness of factors contributing to achievement, they did not make the translation from what they had learned to what they did in working with students. Individual consultation was significant in increasing awareness; the only behavior changes results when consultation was included. Perhaps more intensive consultive follow-up in which more translation of data

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analyses into practical behavior would have increased the impact of this data.

Conclusions

1. Empirical research data provided to faculty about their own classes can be useful for increasing awareness of discreet factors contributing to student achievement.
2. Empirical research data provided without consultation to faculty about student achievement in their own classes has little effect in producing changed teaching behavior in the classroom.
3. Empirical research data presented in a consultive mode is significantly more effective in changing either attitudes or behaviors than that presented in a computer printout format.

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TABLE 1

Effects of Feedback on Awareness and Behavior Change
of Faculty Participating in Research Study of Their Large Classes

	Number Respondents	Raised Awareness		Implemented Change	
		Raw #	%	Raw #	%
Printout Only	9	3	30%	0	0%
Printout and Consultation	9	9	100%	2	22.2%
No Response	2	-	--	-	--
TOTAL	18	12	66.7%	2	11.1%